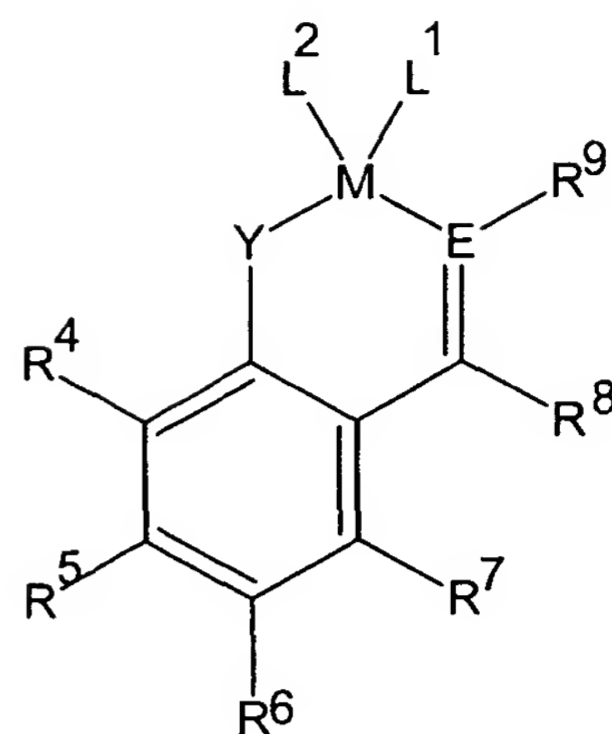


Ia



Ib

in which the substituents and indices have the following meaning:

- M a transition metal of groups 7 to 10 of the periodic system of the elements,
- L phosphanes $(R^{16})_xPH_{3-x}$ or amine $(R^{16})_xNH_{3-x}$ having identical or different substituents R^{16} , ethers $(R^{16})_2O$, H_2O , alcohols $(R^{16})OH$, pyridine, pyridine derivatives of the formula $C_5H_{5-x}(R^{16})_xN$, CO, C_1C_{12} alkyl nitriles, C_6C_{14} aryl nitriles or ethylenically unsaturated double-bonded systems, x standing for an integer between 0 and 3,
- L^2 halide ions, amide ions $(R^{16})_hNH_{2-h}$, h standing for an integer between 0 and 2, and furthermore C_1 - C_6 -alkyl anions, allyl anions, benzyl anions or aryl anions, wherein L^1 and L^2 can be linked to one another by means of one or more covalent bonds,
- E nitrogen,
- Y oxygen, sulfur, $N-R^{10}$ or $P-R^{10}$,

R^1 hydrogen, C_1 - C_{12} -alkyl groups, C_7 - C_{13} aralkyl substituents or C_6 - C_{14} aryl groups,

R^2, R^3 independently of one another

hydrogen,

C_1 - C_{12} alkyl, wherein the alkyl groups can be branched or unbranched,

C_1 - C_{12} alkyl, singly or multiply substituted by identical or different C_1 - C_{12}

alkyl groups, halogens, C_1 - C_{12} alkoxy groups or C_1 - C_{12} thioether groups,

C_7 - C_{13} aralkyl,

C_3 - C_{12} cycloalkyl,

C_3 - C_{12} cycloalkyl, singly or multiply substituted by identical or different C_1 - C_{12}

alkyl groups, halogens, C_1 - C_{12} alkoxy groups or C_1 - C_{12} thioether groups,

C_6 - C_{14} aryl,

C_6 - C_{14} aryl, identically or differently substituted by one or more C_1 - C_{12} alkyl

groups, halogens, singly or multiply halogenated C_1 - C_{12} alkyl groups, C_1 -

C_{12} alkoxy groups, silyloxy groups $OSiR^{11}R^{12}R^{13}$, amino groups $NR^{14}R^{15}$ or

C_1 - C_{12} thioether groups,

C_1 - C_{12} alkoxy groups,

silyloxy groups $OSiR^{11}R^{12}R^{13}$,

halogens or

amino groups $NR^{14}R^{15}$

wherein the substituents R^2 and R^3 can form a saturated or unsaturated 5- to 8-membered ring with one another,

R^4 to R^7 independently of one another

hydrogen,

C_1 - C_{12} alkyl, wherein the alkyl groups can be branched or unbranched,

C_1 - C_{12} alkyl, singly or multiply substituted by identical or different C_1 - C_{12} alkyl groups, halogens, C_1 - C_{12} alkoxy groups or C_1 - C_{12} thioether groups,

C_7 - C_{13} aralkyl

C_3 - C_{12} cycloalkyl,

C_3 - C_{12} cycloalkyl, singly or multiply substituted by identical or different C_1 - C_{12} alkyl groups, halogens, C_1 - C_{12} alkoxy groups or C_1 - C_{12} thioether groups,

C_6 - C_{14} aryl,

C_6 - C_{14} aryl, identically or differently substituted by one or more C_1 - C_{12} alkyl groups, halogens, singly or multiply halogenated C_1 - C_{12} alkyl groups,

C_1 - C_{12} alkoxy groups, silyloxy groups $OSiR^{11}R^{12}R^{13}$, amino groups

$NR^{14}R^{15}$ or C_1 - C_{12} thioether groups,

C_1 - C_{12} alkoxy groups

silyloxy groups $OSiR^{11}R^{12}R^{13}$,

halogens

NO_2 groups or

amino groups $NR^{14}R^{15}$,

wherein pairs of neighboring substituents R^4 to R^7 can form a saturated or unsaturated 5- to 8-membered ring with one another,

R^8, R^9 independently of one another

hydrogen,

C_1 - C_6 alkyl groups,

C_7 - C_{13} aralkyl substituents or

C_6 - C_{14} aryl groups, optionally substituted by one or more C_1 - C_{12} alkyl groups,

halogens, singly or multiply halogenated C_1 - C_{12} alkyl, C_1 - C_{12} alkoxy groups,

silyloxy groups $OSiR^{11}R^{12}R^{13}$, amino groups $NR^{14}R^{15}$ or C_1 - C_{12} thioether groups,

R^{10} to R^{15} independently of one another

hydrogen,

C_1 - C_{20} alkyl groups, which on their part may be substituted by $O(C_1$ - C_6 alkyl) or $N(C_1$ - C_6 alkyl)₂ groups,

C_3 - C_{12} cycloalkyl groups,

C_7 - C_{13} aralkyl substituents or C_6 - C_{14} aryl groups

R^{16} hydrogen,

C_1 - C_{20} alkyl groups, which for their part may be substituted by $O(C_1$ - C_6 alkyl) or $N(C_1$ - C_6 alkyl)₂ groups,

C_3 - C_{12} cycloalkyl groups,

C_7 - C_{13} aralkyl substituents or C_6 - C_{14} aryl groups,

b) dispersing agents and optionally

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- c) organic solvents having low solubility in water,
 - d) the metal complexes a1) being dissolved in a portion or the total quantity of the olefinically unsaturated compounds and/or of the organic solvents c) having low solubility in water and
 - e) the portion or the total quantity of the olefinically unsaturated compounds and/or of the organic solvents c) having low solubility in water which holds the metal complexes a1) in solution being present in the aqueous medium as a dispersed phase having an average droplet diameter $\leq 1,000$ nm.
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